



<110> Vrijic, Marina
Eggeling, Lothar
Sahm, Harmann

<120> PROCESS FOR THE MICROBIAL PRODUCTION OF AMINO ACIDS BY BOOSTED
ACTIVITY OF EXPORT CARRIERS

<130> FJ 122 - sequence listing

<140> 09/105,117

<141> 1998-06-17

<150> PCT/DE96/02485

<151> 1996-12-18

<150> 195 48 22.0

<151> 1995-12-22

<160> 3

<170> MS DOS text only - saved from Word 6.0

<210> 1

<211> 290

<212> DNA

<213> Corynebacterium glutamicum

Table 1

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Helix-Turn-Helix-Motiv
TQPAKATEAG EVLVQAARKM VLLQAETKAQ LSGRLAEIPL TIAINADSLS 100
TWFPFVFNEV ASWGGATLTL RLEDEAHTLS LLRRGDVLGA VTREANPVAG 150
CEVVELGTMR HLAIATPSLR DAYMVDGKLD WAAMPVLRFG PKDVLQDRDL 200
DGRVDGPVGR RRVSI VPSAE GFGEAIRRGL GWGLLPETQA APMLKAGEVI 250
LLDEIPIDTP MYWQRWRLES RSLARLTDAV VDAAIEGLRP 290

<210> 2

<211> 2374

<212> DNA

<213> Corynebacterium glutamicum

Table 2

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 120
 /LysG
 GGAATTGGAA AAGTCTTCAT TGATTCCGGC GTTAGGGAGC TAACGACGTA GTTGCTGCCG
 P R L G E I A A D V V A
 180
 CAGACACTCA GATCGATCTC TAGATCTAAG GTCCGCGGTA GCAACGGTTA TGTAGCCACA
 D T L R A L S R S E L R W R Q W Y M P T
 240
 CAGTTACCCA TAGAGTAGCT CCTCCTAGTG AAGAGGACGA AAATCGTACC CTCGTCGAAC
 D I P I E D L L I V E G A K L M P A A Q
 300
 CCAAAGCCCT TCTTCAGGGG TTGGTTCCGG AGCCGCTTAA CGGAGTGGTT TTGGAAGGCG
 T E P L L G W G L G R R I A E G F G E A
 360
 GCTGCCCTGT TACCTATGCG CGGACGCGGG GTGTCCTGGT AGCTGCGCGG GCAGGTCCAG
 S P V I S V R R R G V P G D V R G D L D
 420
 TGCCAGAACT TCGTGTAGAA ACCCTGGCTT CGCATTCTGC CCGTAGCGTC GGGTTAGATC
 R D Q L V D K P G F R L V P M A A W D L
 480
 AAAGGGTAGT TGGTACATCC GTAGGGCGTT ACTCCCCCAA CGTTACCGGT TCACCGCGTA
 K G D V M Y A D R L S P T A I A L H R M
 540
 CCAAGGTTCA AGATGATGAA GTGTAGGGCG GTGCCCTAAT CGAAGTGCCC AATGGCGAGG
 T G L E V V E C G A V P N A E R T V A G
 600
 ATTTTGTAGA GGTGCGGCGT CGTTCCTATT ACACACGCGA AGTAGAAGGT TCGCGTCGCA
 L V D G R R L L S L T H A E D E L R L T
 660
 CTCGCAACGA GGTGGGGTTC TTCGATGGAG CAACTTGTGC CCTCCTTTGG TACACCTATC
 L T A G G W S A V E N F V P P F W T S L
 720
 GCTTAGACGC AACTACCGCT ACCAATTGCC CTAAAGTCGT TCCGCAGGTC TATCAACGCG
 S D A N I A I T L P I E A L R G S L Q A
 780
 AAATCAAAGA CGAACGTCGT TGTGGTAAAA GGCGCGACGA ACGTGTTCCT GAAGTGGGCG
 K T E A Q L L V M K R A A Q V L V E G A
 840
 AAGCCAACGA AACC GGCCAA CCCACGCGCT ATGGTTGTGA GCTGGGTGCA CTACGAGCTC
 E T A K A P Q T R S V L V R G V H H E L
 900
 TCGAAATTGC GCGACTGAGT GCGGGCTCCC CCTTTACCTT TCCGATTCC TCCGCGGAAG
 A K V R Q S V A S P S I S L A L S A G E
 RCGS 960
 <---LysG
 CTTCGACGGA AGTAGTTACT AACTCTCGTT TCACAGGTC AACTTACCCC AAGTA---5'
 5' ---TGCCTTCATCAATGATTGAGAGCAAAGTGTCCAGTTGAATGGGGTTCATGAAGCT
 F S G E D I I S L L T D L Q I P N M

RBS 1020

ATATTAAACC ATGTTAAGAA CCAATCATTT TACTTAAGTA CTTCCATAGG TCACGATGGT
M V
LysE-->
1080

GATCATGGAA ATCTTCATTA CAGGTCTGCT TTTGGGGGCC AGTCTTTTAC TGTCCATCGG
I M E I F I T G L L L G A S L L L S I G
1140

ACCGCAGAAT G TACTGGTGA TTAAACAAGG AATTAAGCGC GAAGGACTCA TTGCGGTTCT
P Q N V L V I K Q G I K R E G L I A V L
1200

TCTCGTGTGT TTAATTTCTG ACGTCTTTTT GTTCATCGCC GGCACCTTGG GCGTTGATCT
L V C L I S D V F L F I A G T L G V D L
1260

TTTGTCCAAT GCCGCGCCGA TCGTGCTCGA TATTATGCGC TGGGGTGGCA TCGCTTACCT
L S N A A P I V L D I M R W G G I A Y L
1320

GTTATGGTTT GCCGTCATGG CAGCGAAAGA CGCCATGACA AACAAGGTGG AAGCGCCACA
L W F A V M A A K D A M T N K V E A P Q
1380

GATCATTGAA GAAACAGAAC CAACCGTGCC CGATGACACG CCTTTGGGCG GTTCGGCGGT
I I E E T E P T V P D D T P L G G S A V
>>>>>>> <<<<<<<<

1440

GGCCACTGAC ACGCGCAACC GGGTGCGGGT GGAGGTGAGC GTCGATAAGC AGCGGGTTTG
A T D T R N R V R V E V S V D K Q R V W
1500

GGTAAAGCCC ATGTTGATGG CAATCGTGCT GACCTGGTTG AACCCGAATG CGTATTTGGA
V K P M L M A I V L T W L N P N A Y L D
1560

CGCGTTTGTG TTTATCGGCG GCGTCGGCGC GCAATACGGC GACACCGGAC GGTGGATTTT
A F V F I G G V G A Q Y G D T G R W I F
1620

CGCCGCTGGC GCGTTCGCGG CAAGCCTGAT CTGGTTCCCG CTGGTGGGTT TCGGCGCAGC
A A G A F A A S L I W F P L V G F G A A
1680

AGCATTGTCA CGCCCGCTGT CCAGCCCCAA GGTGTGGCGC TGGATCAACG TCGTCGTGGC
A L S R P L S S P K V W R W I N V V V A
>>>>>>> <<<<<<<< /orf3
- N E R T K
5' CTAC TGGCGTAACC GGTAGTTTGA CTACAACTAC CCAATCAAAA GCGCCCAAAA
AGTTGTGATG ACCGCATTGG CCATCAAACCT GATGTTGATG GGTTAGTTTT CGCGGG 5'
V V M T A L A I K L M L M G -
LysE / >>>>>

1740

CCTTAGCCAC CGGAAGCGGG TTTACAACTA CGGCCGCAGC ACCCTTTAGA GTAGCTAGCG
S D T A K A W I N I G A D H S I E D I A
<<<<<<<<

1800

GAGGTTGAGC CGCAGTCTTT TGAGGTTCAA CAACTCACTT AGTTCCGACA ACAGGTCGAC
E L E A D S F E L N N L S D L S N D L Q
1860

1920
 GAGTTGACTG CTTCGTGGTT AGTTACGTGA CCAGTGCCAT AGGCGCGGCA TGAGAGGAAC
 E V S S A G I L A S T V T D A G Y E G Q
 1980
 GAGCGCGTCG TGGGTACGTT CGCGGTAGAC GCGTTCACTG ACGGGCGCAA GGACCCGCTA
 E R L V W A L A M Q A L S Q G R E Q A I
 2040
 CAGTAACTCG AACGCCTGGT ATAGTTATAA CAAGTGCAAG TTGTACGGGA GTCTGTCCTT
 D N L K R V M D I N N V N L M G E S L S
 2100
 GAATGGGACC GACCGCGCCC TTGGGAGACC TTAAGGTAGC TCTATAAACA GGCACCTCGTC
 K G Q S A R S G E P I G D L Y K D T L L
 2160
 CGGGACGCGT TCACCACTCT TTCGTTACTG CGGTTCTGGT AACAACCGTC GACTGACGTT
 G Q A L P S F A I V G L G N N A A S Q L
 2220
 GTTCAAGAGT GGCAGTAGCG GGCCAAGGAG GTGGGTGCT AATTACTACC TTATCGAACC
 L N E G D D G P E E V W R N I I S Y S P
 2280
 GACTACTTAG TCTTCGCCCC TCGGGAGGAG GCGGTACTTG AGTCGGCGGA GGCGACACTC
 Q H I L L P C G E E A M F E A A E A T L
 2340
 GAGACCTGGC ATCCTTCTTT ATGGGTGCAT TTCTCGGAAA GGTCTGCGTT GTTACAGTGC
 E P G Y S S I G V Y L A K G S A V I D R
 2374

/-orf3+

GTTACGCATG TACCAAAGAA GGTTCCTCA TAGA
 L A Y M T E E L P T D

<210> 3
 <211> 236
 <212> DNA
 <213> *Corynebacterium glutamicum*

Table 3

MVIMEIFITG LLLGASLLLS IGPQNVLVIK QGIKREGLIA VLLVCLISDV 50
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 FLFIAGTLGV DLLSNAAPIV LDIMRWGGIA YLLWFAVMAA KDAMTNKVEA 100
 TMH3
 PQIIEETEPT VPDDTPLGGS AVATDTRNRV RVEVSVDKQR VWVKPMLMAI 150
 VLTWLNPNAY LDAFVFIGGV GAQYGDTRGW IFAAGAFAS LIWFPLVGFG 200
 TMH4 TMH5
 AAALSRLSS PKVWRWINVV VAVVMTALAI KLMLMG 236
 TMH6